

- b. a hollow mandrel having a proximate end and a distal end, the mandrel comprising:
- (1) a lead-in portion formed on the distal end of the mandrel;
 - (2) a first cylindrical portion adjacent to the lead-in portion, the first cylindrical portion having a first exterior diameter;
 - (3) a first raised band positioned upon the first cylindrical portion, the first raised band having a diameter greater than the first exterior diameter of the first cylindrical portion, the first raised band contacting the interior cylindrical wall of the collar portion to form a first seal between the mandrel and the pipette tip; and
 - (4) a second cylindrical portion adjacent to the first cylindrical portion, the second cylindrical portion having a second exterior diameter.

16. A method for connecting a pipette mandrel to a pipette tip comprising:

- a. providing a pipette tip comprising a collar portion and an adjacent conical head, the conical head for receiving or expelling fluids from the tip, the collar portion including an interior cylindrical wall having a first interior diameter;
- b. providing a hollow mandrel having a proximate end and a distal end, the mandrel comprising:
 - (1) a lead-in portion formed on the distal end of the mandrel;